

# ESD BMP Site Visit and Maintenance Detail Recommendations

DEP 2024



**Conduct a site visit prior to plant selections to identify sediment, salt and deer pressure and other conditions at the proposed site. Based on the site visit, use deer resistant plants and/or plan for methods of minimizing damage to plants, particularly when newly installed.**

## Example check list:

- Deer pressure
- Salt and sediment load
- Water velocity
- Soil type and draw down time
- Sun/shade
- Location:
  - Adjacent to steep slopes
  - Adjacent to weedy vegetation or naturalized areas, or in the middle of a parking lot
  - Line of site issues



## Attach maintenance details to the planting schedule.

### Examples:

- Schedule for BMP's to be maintained after plant installation and regularly thereafter during plant establishment phase/warranty period to ensure a weed free soil environment and plant survivability.
- Aim for plant coverage of at least 75% after plant establishment period.
- Ensure adjacent green open space and side slopes are mowed regularly before weeds/flowers go to seed, infecting the BMP.
- Direct mowed cuttings away from the BMP.
- Details should include facility inlet protection until construction is completed, if needed.
- Details should indicate which phase of construction the plants are to be installed.
- Details what season to prune back plants

# ESD BMP Plant Schedule Considerations

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## Follow these recommendations to ensure planting success for ESD BMPs:

- Use dwarf cultivars whenever possible for controlled growth in smaller facilities.
- Plants for ESD should not be restoration grade; use "Heavy or Retail Ready grade" for quick establishment.
- Plant in mass groupings using fewer varieties for easier recognition by maintenance staff.
- Use a ground cover layer to reduce bare mulch exposure and weed growth on new installations. Mature plantings should achieve no bare earth or need for mulch within 2-3 seasons. Trees, shrubs and taller perennials should be underplanted with a groundcover to help ensure a completely vegetated condition.
- Do not use plugs or seed, as they are slow to establish and allow for weed invasion, and their survival is unreliable. In some low flow situations plugs or quarts may work as a ground cover layer spaced 8-12" on center.
- Woody plant material (Shrubs)—maturing up to 3' should be a minimum of 2-gallon container size and be spaced 20-24" on center; consider adding a ground cover layer.
- Woody plant material (Shrubs)—maturing 4' or more should be a minimum of 3-gallon size, be spaced 3'-4' on center depending on **mature size and growth rate**, and use a ground cover layer. (For example, with Inkberry, the growth habit is very tight and slow to fill out, so needs to be spaced more closely together versus a Viburnum.)
- Woody plant material (Trees)—1 ½ " caliper minimum size, and use under-plantings and/or a ground cover layer.
- Herbaceous plant material—should be a minimum of 1-gallon size and spaced 18-24" on center on average, adjust depending on **mature size and growth rate**.
- New plantings should be mulched with a 3-inch layer of double shredded undyed hardwood bark mulch until full plant establishment.
- Hand watering should be required for six weeks after installation: 3 times a week for 2 weeks, 2 times a week for 2 weeks and once a week for 2 weeks, thereafter on an as-needed basis dependent on weather (drought or rain).  
Note: In general, do not plant shrubs or perennials within the grass panel side slopes.







# ESD BMP Plant Selection Guidance

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DEP has found success using the following plants in ESD BMPs with the added benefit that they withstand deer pressure. The list is not considered exhaustive but is instead intended to serve as a guide to help ensure successful plant establishment and survival. Please consider BMP size, line of site issues and safety concerns when choosing plants. Plant mature size matters.

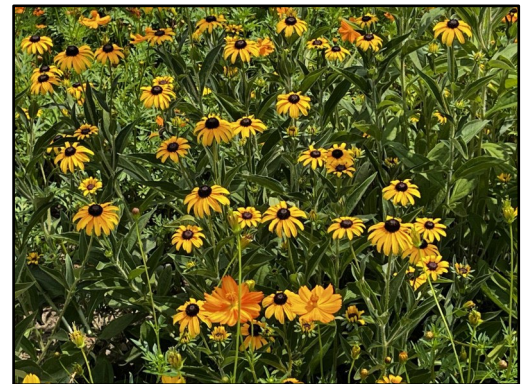
## Inlets and near overflow structures

\*\*Note may get stressed during drought conditions

*Iris versicolor* (Northern Blue Flag Iris)

*Juncus effusus* (Soft Rush)

*Packera aurea* (Golden Ragwort)



## Lower basin area

### Perennials/grasses:

*Panicum virgatum* (Switchgrass) \*\*Note dwarf cultivars"

‘Shenandoah’ and ‘Cape Breeze’

*Eupatorium dubium* (Joe-Pye Weed) \*\*Note dwarf cultivar ‘Little Joe’

*Iris versicolor* - (Northern Blue Flag Iris)

*Rudbeckia fulgida* (Black-eyed Susan) \*\*Note *R. hirta* is a biennial—do not use

*Solidago* spp. (Goldenrod) \*\*Note dwarf cultivar *S. sphacelata* ‘Golden Fleece’

*Schizachyrium scoparium* ‘Standing Ovation’ (Standing Ovation Little Bluestem)

*Echinacea purpurea* (Purple Coneflower) \*\*Note many dwarf cultivars available

*Baptisia australis* (False Indigo)

*Pycnanthemum* spp. (Mountain Mint)

*Amsonia hubrichtii* (Threadleaf Blue Star)

*Physostegia virginiana* (Obedient Plant) \*\*Note ‘Pink Manners’ is a clump grower

*Ferns* spp. -shade





## Lower basin area (con't.)

### Shrubs:

*Ilex verticillata* (Winterberry holly M-F pair needed for pollination)

\*\*note dwarf cultivars available

*Itea virginiana* 'Henry's Garnet' (Virginia sweetspire)

\*\*Note dwarf cultivar 'Little Henry'

*Ilex glabra* (Inkberry) \*\* Note this has a tight growth habit, for best results plant in close groupings. Do not suggest this for naturalized settings, do not plant in grass panel side slope.

### Trees:

*Magnolia virginiana* (Sweetbay Magnolia) \*\*Note needs deer protection until more mature

*Betula nigra* (River Birch-for larger BMPs)



## Side slopes within the basin area

Note: DEP recommends not adding plants to the grass panel area surrounding the BMP. Conditions can be difficult for plant survival and maintenance because this area is very compacted and plants tend to struggle. Part of routine maintenance is to string trim the grass panel 2' or so around the BMP, and it is easier and quicker if this area is maintained as grass only.

### Perennials:

*Penstemon digitalis* 'Husker Red' (Beardtounge)

*Aster oblongifolius* 'October Skies' (Aromatic Aster)

*Aster divaricatus* (White Wood Aster, shade reqd.)

*Nepeta faassenii* 'Walker's Low.' (Catmint, Non-native)

*Allium* 'Millenium' (Ornamental Onion, Non-native)

### Shrubs:

*Juniperus* v. 'Grey Owl'

*Fothergilla x intermedia* 'Mt Airy' (Fothergilla)

### Trees:

*Amelanchier canadensis* (Serviceberry)

*Cercis canadensis* (Eastern Redbud)



### Ground Covers:

\*\*Ground Cover/Filler between shrub layer or under tree plantings:

*Packera aurea* (Golden ragwort)

*Salvia lyrata* (Lyreleaf Sage)

*Carex* spp.





### Additional Considerations

These are plants that DEP has found **do not** survive in the long term, so avoid using if possible.

#### Perennials:

*Asclepias incarnata* (Swamp milkweed)-Does not survive long dry spells

*Asclepias tuberosa* (Butterfly weed)-Slow to establish

*Rudbeckia hirta* (Black Eyed Susan)-Biennial/short lived

*Lobelia cardinalis* (Cardinal flower)- Biennial/short lived

Note: Be aware of using aggressively-spreading natives, such as *Chasmanthium latifolium* (River Oats), which can quickly out-compete and take over other plants in the BMP.



ESD BMPs are a dynamic system, extreme weather events, improper initial plant choices, and nearby tree canopy/root growth can cause plant failure over time due to these situations. It is important to look at the site to evaluate the best alternative planting approaches that would be appropriate under the current conditions and not to plant with the initial specified plant material that has failed.





# ESD BMP Watering Instructions

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## Follow this watering protocol to ensure successful plant establishment for ESD BMPs:

Water plants for 6 weeks following installation, unless more than a ½-inch of rain falls in any week for which watering is scheduled. During the 6-week period following installation, please follow this schedule:

- 3 times a week for the first 2 weeks
- 2 times a week for the next 2 weeks
- 1 time a week for the last 2 weeks

\*\*\*Adjust schedule accordingly due to rainfall\*\*\*



### WATERING NOTES

All watering should use a hose with nozzle end breaker or a sprinkler. Be mindful that sprinklers do not water evenly and will need to be monitored for the flow patterns.

Areas that are getting missed will need subsequent hand watering or sprinklers adjusted to get full watering coverage. Water must be applied in sufficient quantities to maintain moist soil to a depth of at least 4 inches.

Water must be applied at low water pressure directly to the root zone of each plant, allowing water to be absorbed into the planting pit soil until saturated, but without runoff.

If planting late in the season (November) the watering schedule may be shortened. Due to the late install please water once the weather warms up for one month. In severe dry days beyond the schedule outlined above, please monitor plantings for wilting and water as needed, especially during the first year.